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ABSTRACT

In March 1959, Howard McClusky introduced his Power Load Margin (PLM) theory and proposed that it be used for studying the adult years and for developing and building realistic educational programs for adults. His formula, which states that the key components of adulthood are load (the demands made upon the individual by self and society) and power (a combination of interacting factors that the individual possesses to sustain the load), is grounded in the studies in biographical psychology that were conducted by Charlotte Buhler and Elsie Frenkel-Brunswick; moreover, it was confirmed by the research in the area of changes in adult values and perceptions of reality occurring at different stages in adulthood that was conducted by R. C. Peck and W. E. Henry. McClusky did not develop a research instrument to test the PLM formula; however, in 1973 Joanne Sabol Stevenson began studies that resulted in the formation of the Margin in Life scale. It can be used as an assessment tool to identify areas of strength and weakness as well as potential power in adult students, helping them modify their life space to meet their educational goals more effectively. (MN)

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Power Load Margin Concept: Key Components of Adulthood

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In March of 1959 at a conference sponsored by the Adult Education Association at the University of Wisconsin, Howard MClusky introduced his Power Load Margin (PLM) theory and proposed that it be used for studying the adult years and for developing and building realistic educational programs for adults.

McClusky (1963) perceived adulthood as the "ongoingness of life" during which adults faced successive and unrelenting demands that called for constant adjustment on their part. He saw adults as striving to become integrated persons and seeking goals to improve their current status but as also having a "built-in" tendency for self protection (McClusky, 1963). Adults continually seek to integrate their experiences into meaningful patterns and to eliminate those experiences that do not fit. They do so by a continual process of goal setting, always aspiring for improvement. The adult always lives part of his life in the future and is not "...a human being but a human becoming" (McClusky, 1963, p.15).

POWER LOAD MARGIN CONCEPT AND FORMULA

McClusky (1963) stated that the key components of adulthood are load (the demands made upon the individual by self and society) and power (a

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combination of interacting factors that the individual possesses to sustain the load). Load and power each consist of two categories of intervening variables:

> Internal load consists of the life expectancies individuals set for themselves based on values, attitudes, needs, and work, educational, and personal goals.
>
> External load results from the tasks involved in the daily requirements of living: family, work, civic, and social obligations.
>
> Internal power can be defined as abilities and aptitudes, acquired skills, and various other mental abilities.
>
> External power may be possessions, allies, money, position, and other tangible items.

The third concept in the formula, margin of power, is defined as the ratio of load to power and as surplus power available to the individual over and beyond that required to handle the load (McClusky, 1963). Margin can be used to measure adjustment during adulthood, interpreting how the integrative and protective tendencies of adults assist them in coping with life in a mature manner.

The formula McClusky suggested is a ratio of load to power with load placed in the numerator and power in the denominator. A margin in the range of .50 to .80 is needed to meet unexpected emergencies. "When the load continually matches or exceeds power, and if both are fixed and/or out of control or irreversible, the situation becomes highly vulnerable and susceptible to breakdown" (McClusky, 1970, pp. 144-145). McClusky (1970) also believed that margin is a prerequisite for learning and that education itself is a means by which adults can increase margin.

The concept of margin is particularly relevant for understanding the adult years. Having margin is essential to the mental health of adults.

As adulthood denotes responsibility, each adult needs a reserve of power to meet unexpected emergencies and unpredictable crises as well as problems that are of less magnitude. Margin, thus is a function of power of choice and the number of alternatives that the individual has (McClusky, 1963). Individuals have excess margin when they have a broad field of life space, the ability to move autonomously within that field and, most importantly, the ability to explore and engage in creative activities. Individuals with little margin have few or no alternatives and insufficient power to use them. These individuals become trapped and have little space in which to move (McClusky, 1963).

THEORETICAL FOUNDATION FOR THE PLM CONCEPT AND FORMULA

The PLM model is grounded in Charlotte Buhler and Elsie Frenkel-Brunswick's studies in biographical psychology which are based upon empirical data on life span sequences; W. E. Henry's exploratory studies of the fantasies of 30, 40, and 50 year old normal adult males; and Robert Peck's analysis of the psychological shifts in values that occur from middle to old age (McClusky, 1963). The latter two studies were conducted during the late 1950's and early 1960's, a time when developmental and educational psychologists became interested in studying the adult years.

Studies in Biographical Psychology

The main objective of the Buhler-Frenkel research was to ascertain what similarities and parallels exist, if any, in the span of human life between the biological curve and the events, experiences, and attainments in life (Buhler, 1935; Frenkel, 1963). To obtain this data Buhler assisted by Frenkel investigated over 300 biographies of individuals of various ages and professions. The information obtained was categorized by dates according to external events in life that are age related, inner experiences

related to these events in the sequence of their occurrence, and the dates of work and accomplishments that occurred during the lives of the various individuals in the study.

Buhler (1935) stated that the most important conclusion that can be drawn from the study is that despite the uniqueness of each individual, "...there is positively a 'regular sequence' in the events, experiences and attainments in life" (p. 406), and that a psychological curve parallels the biological curve.

The biological curve reflects a very definite and regular pattern characterized by growth and an increase in strength up to an average age of about 25 years, stablization of vitality at approximately the same point for 20 to 30 years, and then a gradual or quick descent of vitality due to retrogression (Buhler, 1935). Similar to the biological curve, the events, experiences, and attainments in life show a period of growth and expansion, stability, and restriction. What differentiates the two curves is "...that the psychological increase and decrease compared to the biological increase and decrease is retarded, that is, the curve rises slower, culminates later, and falls later than the biological curve" (Buhler, 1935, p. 406). McClusky (1963) stated that the psychological curve is a reflection of the achievement of certain life objectives which a person has set for himself or which have been set for him by society.

Spiritual and physical aspects of the human life span can also be depicted as curves with the high point of the magnitude, activity, and attainment of spiritual factors occurring predominantly at the end or latter part of life while physical factors, which may be the deciding factors of life such as strength and beauty, occur earlier.

A curve representing work and attainment was also noted and was similar to the psychological curve; however, high points in this characteristic can be reached throughout the whole spectrum of the curve: early, middle, or late. The placement of the high point is dependent upon the specific and particular profession in which the individual is engaged.

Buhler (1935) identified another important regularity from the data, "...the tendency to specification and definite results" (p. 407). Although young people during adolescence formulate plans both personal and professional, these plans are usually discarded as they discover new and other talents, occupations, professional activities, and people, all of which seem to offer better results and opportunities and seem more appealing. For this reason Buhler states that the first stages of life (childhood and youth) have a preparatory or provisional character and sees them as encompassing non-specified activities.

Not until the 30's is a decided change in attitudes and beliefs noted. "With amazing coordination we find in all correspondences of this age expressions of a need for that which is definite: the 'right' and definite profession, or the 'right' wife" (Buhler, 1935, pp. 407-408). This phase of the life span is labeled the period of specification and definiteness in work and professional relationships.

A fourth stage of life is noted approximately 15 years later when individuals begin to test and question their accomplishments. The major focus of this stage for so many individuals is success and achievement with the time span during which this occurs varying for each individual. This period ends at approximately 55 years of age when individuals approaching old age form new attitudes and begin to reflect upon their lives. The

final stage of life which "...lies after life, corresponds (to) the period of childhood and youth which lies, so to say in front of life so that the complete life is made up of five phases" (Buhler, 1935, p. 408).

Study of Adult Role Perceptions

Henry's research on the psychological well-being of normal adults lends to credence to Buhler and Frendel's findings on life span sequences. Henry (1956) contended that the study of adult normal personality had not constituted a major segment of investigation and that knowledge about normal adults was essentially drawn from studies of pathological groups. Therefore, Henry claimed that our concept of normality may contain compelling distortions and that the dynamics of neurosis is more clearly understood than the dynamics of being a complex normal adult.

Henry's solution to this was to investigate the range and variety of emotional adaptation made by adults throughout the life span. His concept of affective complexity as the basis for change in behavioral complexity functions as a central concept describing normal adult personality, relating personality to external situations, and for judging successful aging. "Affective complexity may be seen as an attribute of the person characterized by both inner resources and sensitivity which would serve to make him aware of and able to accept emotionally the experiential complexities of life" (Henry, 1956, p. 35).

Henry (1956) described the individual who possesses this attribute as one who

1. is sensitive to a variety of experiences,
2. is able to respond to other people and other ideas different from his own rather than reacting against them,

3. is able to accept differences as natural rather than as a threat,

4. is able to have confidence in his own judgment,

5. is able to integrate into his own personality the emotional implications of varied external events,

6. is able to utilize the emotional residues of his experiences in guiding his own behavior,

7. is able to tolerate wider ranges of personal inconsistencies. Thus, one further central feature of affective complexity is the state in which the individual is able to accept as relevant to his own person the emotionally differentiated experiences of life and to utilize them as a base for his own change and development (p. 36).

One method Henry suggested to further explore the concept of affective, complexity and normal adulthood was through the exploration of adults' perceptions of available roles in their social life space. To obtain data for this research, Henry (1956) conducted an exploratory study of the fantasies of normal adult males in the age categories of the 30's, 40's, and 50's. The participants in the study were normal adult males in business occupations.

The classifications under investigation were conceptions of the external world, inner reality, and interactions of self and the external world with the primary goal to ascertain the personality differences amongst the three age groups. These variables were not predetermined but emerged from the study. A synopsis of the research findings follows:

External World

This classification includes variables related to definitions of external stimulation.

Personalization-Generalization

Henry was not satisfied with the classification of this category and stated that the concepts of immediacy to abstractness and emotional to rational appeared to more adequately describe it.

The 30 year group interacted with external events as having immediate, personal, and emotional reference while the 50 year group tended to interact with general categories of persons and events and abstractions about people and events. The 40 year group functioned at a midpoint between the two groups but exhibited a high degree of self-conscious projection.

Nature of External Environment

This category describes the groups' perceptions of the external world, the importance this held for them, and the characteristics they attributed to it.

The 30 year group dealt with the external environment in an easy and confident manner and saw the world as limited in scope and composed of known dimensions. The world was not inhibiting nor malign. The 40 year group viewed the world as more complex and threatening. There were many unknowns, some of which were malign. There was an increasing awareness of inner motivation, and the subjects began to experience conflict between their inner and outer worlds, suggesting that the decade of the forties is the most affectively complex one in the study. The 50 year group viewed the world with a more intensive awareness of a potentially malign outer world and had an increased social orbit.

Role Perception

This category reflects specific relationships to and characteristic of significant others in the subject's personal environment. Only one role was analyzed of the many inherent in this category, male-female roles.

A wide discrepancy in perception existed amongst all three groups. The 30 year group viewed the male as the "...central force in the environment, from which all action stems" (Henry, 1956, p. 38). The men in this group

were full of confidence in their own abilities to solve all problems. The female was seen as a foil to their goals and was strong and emotional and, therefore, they must "...cajole her into line" (Henry, 1956, p. 38). There was little interaction between males and females.

The 40 year group viewed the husband and wife relationship as complex and disturbing. The subjects began to see themselves as less competent and strong while the female grew more irritable. However, all the subjects agreed that they must live with her.

Not until the age of 50 did the men lose their sterotypic views about people and see women as individuals with their own goals and plans. Interaction between real people occurred for the 50 year group.

Inner Reality

This classification relates most specifically to self or the inner state.

Body Image

This category refers to the men's preoccupation with their body as a physical object and the way in which they related to it. This was first noticed in the 40 year group who were by far the most preoccupied by body image.

Sexuality

This category refers to the subjects' perceptions of themselves as sexual objects. The 30 year group expressed a high concern for sexuality, particularly in interpersonal relations. The 40 year group expressed little interest in love or sexuality at the interpersonal level, and the 50 year group viewed sexuality in the most general and abstract form.

Affect Intensity

This category defines the extent to which affect is a significant

factor in life preoccupations. The 30 year group viewed life with more emotion and affect than the 40 year group who were more concerned with general complexities and inner life motivation. There was an increase in emotion and affect for the 50 year group but not at the level exhibited by the 30 year group.

Interaction of Self and External World

This classification reflects the relationship between the way the inner state influences action in the outer world.

Nature of Inner Motivation

This category refers to the individual's internal use of motivation. For the 30 year group inner life was a threat to ambition and was generally denied. This became a focal point and source of concern and conflict for the 40 year group. It appears that the forties is a period of life where inner selves become more highly developed and where integration between inner and outer worlds is very difficult. The 50 year group became more introspective and used ideal types in reference to inner feelings.

Action Initiation

This category refers to the extent to which the subjects viewed themselves as able to direct and influence their lives. The 30 year group with their view of a more constricted outer world was bound by sterotypes. They acted in what they felt was the proper mode and were easily influenced by the actions of others. The 40 year group saw themselves as having the most influence over their actions while the 50 year group was overwhelmed by the wide range of possibilities with which they were confronted. However, they felt less compelled to influence these possibilities, were more willing to compromise, and did not as a rule establish new goals.

Complexity Scope and Alternatives Resolution

This category refers "...to the ability to see many complex alternatives but to choose only a limited range of them to deal with" (Henry, 1956, p. 39). The 50 year group was the most dominant group in this category and had the highest percent of unfinished actions and decisions. For them every action did not need to have a definite and good outcome. This was not the case for the 30 year group.

Value Shift in Middle Age and Old Age

Peck (1956) stated that during the second half of life physiology suffers: physical vigor and vitality decrease and diminish but are surplanted by further development of mental powers and through the transmission of social culture.

> It is precisely in the surplanting of sheer physical vigor and animal powers, by the development of 'mental powers,' and by the creation and transmission of a 'social culture' that we show our uniquely human capacities (p. 42).

The second half of life is far more complex and demanding than the first half of life. The variety of experiences and the increasing number of tasks and responsibilities that confront most individuals foster the development of mental capacities as well as a type of learning that is experiential, wisdom.

> Sheer mental and perceptual acuity may well reach a final peak in the twenties; there is a good deal of evidence that this is true. The ability to interpret perceptions farsightedly, foresee complex consequences, and make wise decisions--this ability may require more lived-through experience than the years of youth permit (Peck, 1956, p. 42).

Because adults do develop new and different abilities at the age of 35 and over, Peck (1956) believed that a developmental process occurs during the second half of life and proposed a developmental hypothesis to study the aging process.

The foundation for this hypothesis is based on Erickson's (1950)

Eight Stages of Man. The first four stages are psychic developmental tasks that are confronted in infancy and childhood; the fifth stage, identity, is a task for adolesence, and the sixth and seventh stages describe tasks that occur in young adulthood. Peck (1956) states that the eighth stage, ego integrity versus despair, in a global, non-specific manner encompasses the psychological crises and crises solutions of the last 40 to 50 years of life. Peck divided this stage into two chronological periods, middle age and old age, and then delineated and defined the developmental stages and tasks to be mastered in each period. This typology follows.

Middle Age

Valuing Wisdom versus Valuing Physical Powers.

During this stage significant decreases in physical strength and stamina occur. However, this deficiency is more than compensated for by incremental increases in wisdom and judgmental powers. Wisdom is defined not as intellectual capacity but as "...the ability to make the most effective choices among the alternatives which intellectual perception and imagination present for one's decision" (Peck, 1956, p. 45).

From personality analyses of several thousand business people, mostly men in the middle range of life, Peck concluded that the shift in this value occurs somewhere between the late 30's and the late 40's and states that those who cannot make this transition have difficulty in aging. This shift in value is not automatic, nor does it occur for every individual.

Socializing versus Sexualizing in Human Relationships

This shift in values is percipatated by the onset of the sexual climacteric, and while related to general physical conditions, is partially separated from it. During this stage, the individual has an opportunity to view people as individuals and unique human beings and not as sexual objects.

Cathetic Flexibility versus Cathetic Impoverishment

Emotional flexibility; i.e., the ability to shift emotional investment from one person to another and one activity to another is very important during this stage of development as this is the period of life where losses of significant others begin to take place.

However, this is also a period of life during which many individuals have the greatest range of potential cathexis objects. These individuals are seen as experienced or ma[illegible] and have a wide circle of friends of all ages and in all segments of their lives. Consequently, they have more complex and varied relationships than would [illegible] been possible at a younger age. Those indiviiuals who are unable to form new emotional attachments or adapt to new lifestyles experience this stage as a crisis.

Mental Flexibility versus Mental Rigidty

The major issue with which individuals are confronted in this stage is whether they have some mastery or sense of control over their lives or whether external events and experiences control them.

Those persons who master this stage learn to master their experiences, detach from them, at least to some extent, and then use this detached perspective as provisional guidelines for solving and mastering new problems. Those who are unsuccessful are bound by a set of fixed, inflexible, and rigid rules that govern their subsequent behavior.

Old Age

Ego Differentiation versus Work-Role Preccupation

Major changes in lifestyle initiate this shift in values with the most specific issue for men, retirement from work, and for women, the empty nest syndrome.[1.] A redefinition of the work role must take place, and the individual must be able to take greater satisfaction in a broader range of

activities.

While ego differentiation into a complex varied set of identification starts during early childhood and continues throughout life, it is at this period when retirement occurs, that the task becomes crucial. Reduction of income, increased dependence upon others, and a decrease in status require that differentiation occur not just among "...varied role activities but among different attributes of personality and interpersonal relations" (Peck, 1956, p. 47). Therefore, "...one critical requisite for successful adaptation to old age may be the establishment of a varied set of valued activities and valued self-attributes, so that any one of several alternatives can be pursued with a sense of satisfaction and worthwhileness" (Peck, 1956, p. 47).

Body Transcedence versus Body Preoccupation

There is a tendency during this stage for the individual to become preoccupied with bodily states percepitated by decreases in physical well being and a decline in resistance to illness and recuperative powers. Successful mastery of this stage entails defining happiness and comfort in terms of satisfactory relations and creative mental activities.

Ego Transcedence versus Ego Preoccupation

Individuals must ultimately come to terms with their own mortality. It is not a passive resignation but a deep active effort to make life more secure and meaningful for those left and for future generations. Mastery of this stage in essence means that being able to live so unselfishly and so generously that the prospect of personal death looks and feels less important than knowing that one has built a far broader future than any ego can encompass. It is this last task that is the most human of all attributes and the most crucial achievement of old age and life itself.

Summation

While numerous typologies on adult life sequences have been developed within the last several decades, the Buhler-Frenkel life sequence curve is a model that can still be used effectively. The external events, experiences, and accomplishments of the current adult population could easily be plotted into a similar curve. However, the last two stages would not be as clearly defined with regard to chronological age. A more affluent population, increased longevity, technological innovation, and the tremendous influx of women into institutions of higher education and the work force have fostered more variability in the lifestyles of adults with regard to age.

The differences in perceptions amongst the males in the three age categories in Henry's study clearly indicate that adulthood as well as childhood is a developmental process. It is somewhat startling, however, to realize that another such study would probably produce responses similar to those recorded by Henry regarding male-female roles. While there can be no doubt that we now have a higher percentage of men and women choosing more egalitarian lifestyles for themselves and their families, it is also true that there has never been a time in our society when less clarity, more ambiguity, and greater stress existed with regard to male-female roles.

Peck's developmental tasks for middle and old age are tasks with which all of us will be confronted. With our consumer and youth-oriented society and the overwhelming emphasis on health and physical fitness, valuing wisdom over physical prowess and transcending body and ego preoccupation may indeed be a difficult task for all of us.

These three research studies confirmed McClusky's belief that adulthood is a developmental process and that the unique characteristics, problems, and potentialities of the adult years could only be known through a thorough

study and investigation of adult life sequences.

MARGIN IN LIFE SCALE

McClusky did not develop a research instrument to test the PLM formula, and it remained untested for over a decade. In 1973 Joanne Sabol Stevenson, Director of Nursing Research, at Ohio State University, began a series of studies to develop a research instrument to measure margin of power in adult subjects and to study its psychometric properties.[2] The scale entitled, Margin in Life (MIL), has been used several times with positive results.

The scale incorporates the key factors of life (load and power) as delineated by McClusky. A formula was designated with load in the numerator and power in the denominator.

$$\frac{\text{Load}}{\text{Power}}$$

Each MIL score is thus the resulting ratio substracted from total capacity (1:00).

$$1{:}00 - \frac{L}{P} = \text{MIL}$$

Stevenson (1982) elaborated and expanded upon McClusky's definitions of load, power, and margin in order to operationalize the scale. Load is defined "...as any intangible thought, feeling, or physiological function, or any concrete task which dissipates energy when mentally entertained or physically implemented" (p. 222). Load consists of two categories of intervening variables: internal and external. Internal load consists of variables inside the person: physiological functioning, intellectual development, spiritual/religious concerns, self-concept, goals, and the individuals' expectations for themselves. External load consists of variables

in the environment and the usual day-to-day tasks related to family, work, and community.

Power is defined as "...any source of energy that can be used to accomplish the load" (Stevenson, 1981, p. 222). Power also consists of two categories of intervening variables: internal and external. Internal resources are physiological functioning, intellectual development, education, self-concept, spiritual/religious strengths, goals, and expectations that have been achieved. External variables are physical and social skills, economic status, and power sources emerging from family, work, and the community.

Margin is defined as "...the vitality (in the physiological sense) or a modicum of freedom (in a socio-cultural sense) which each person must have to meet new needs at any time (Stevenson, p. 1). A ratio in the range of .30 to .70 is necessary to meet new life changes, stresses, or emergencies. A MIL score below .30 may indicate that an individual is living beyond the tolerable limits of stress or is in the terminal stages of life. A MIL score above .70 may indicate too little load and that the person is operating below potential (Stevenson, 1982, p. 222).

Six major dimensions of adult life, viewed as independent domains for research measurement purposes served as the foundation for the development of the scale (Stevenson, 1982). These dimensions, physiological functioning, intellectual development, self-concept, spiritual/religious domain, family, work, and community, in turn, became the basis for the development of the following six subscales: body/physical health, self-concept, religiosity/spirituality, family relationships, extra-familial human relations, and non-people environment. There are slight differences between the six dimensions of adult life and the six subscales. Intellectual development and work and community were not designated as subscales; however, items

related to intellectual development were incorporated into the self-concept subscale, and items related to work and community were incorporated into either the extra-familial human relations or non-people environment subscales.

Form 1 of the initial scale contained 211 items which were chosen from the Cornell Medical Index (Cornell, 1965), the Tennessee Self-Concept Scale (Fitts, 1964), the Religiosity Scale (Swenson, 1959), the Life Satisfaction Scale (Neugarten, 1961), and the Locus of Internal-External Control Scale (Rotter, 1966) plus additional items believed by the research team to be universal and relevant to adult experiences.

In 1973 the scale was administered to a group of 146 healthy adults who volunteered their services for this project. They were given written instructions and definitions of load, power, and margin. Each of the 211 items were to be evaluated on a continium of 10 spaces from the highest load (0) to the highest power (10). An example follows:

Generally speaking

My physical condition is

Load	Power	Not Applicable	Comments
//////////		☐	

(Stevenson, 1981, p. 223)

Space was provided in the scale for comments, and an investigator was present to answer questions. The participants also completed a demographic questionnaire which contained questions related to age; sex; marital status; education; their health and health practices; and inquiries on the nature of their home situation, children living at home, and whether chronically ill, retarded, or elderly person lived with them.

Participants' written comments together with in-depth interviews

conducted with ten percent of the participants provided information regarding the face validity of the scale, the procedures for completing it, and the syntax of the items. A majority of the participants stated that the scale reflected aspects of their life experiences. Two of their criticisms were used to restructure the procedures for completing the scale. The importance of each item was to be judged on a scale from 1 to 10 (low to high), and each item was to be ranked for both load and power on a scale from 1 to 5 (low to high).

An example follows:

Generally speaking...	Importance of item	Load	Power	Item Not Applicable
My eyesight is:	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5	1 2 3 4 5	☐

(Stevenson, 1982, p.1).

Form 2 and the demographic questionnaire were then administered to 103 normal, healthy adults six weeks after the first test was completed. Of the 103 participants, 66 of them had completed Form 1, and 37 of them were new respondents. The sample included farmers, blue collar workers, middle management employees, public school educators, faculty from a small liberal arts college, and homemakers. Their ages ranged from 20 to 60 with 74.8 percent of the participants between the ages of 31 to 60. The sex ratio was relatively even: 48 percent male and 52 percent female. A very high percentage of the participants were married (93 percent) and were church members (81 percent). All were Caucasion.

The scale was subjected to various statistical tests to assess stability of responses from time 1 to time 2 for the 66 repeaters. Their responses were compared for test-retest validity using Pearson Correlation coefficients

and the Wilcoxin matched pairs signed rank test. Pearson Correlation coefficients between time 1 and time 2 for each of the subscales were $r > .80$ and the results of the Wilcoxin matched pairs signed rank test indicated that the scale was stable over time at a $p < .01$.

The Mann Whitney U test was also conducted to compare the responses of the 66 repeaters with those of the 37 new respondents who took the test at time 2 only. The results did not approach significance suggesting no test-effect bias for the repeaters.

Form 2 of the initial scale was subjected to item analysis and deletion by use of the Pearson Product Moment Correlation and the Scheffé procedure. Every item within each subscale was reviewed for elimination by a combination of statistical and clinical criteria. Highly correlated item pairs ($> .70$) in each subscale were examined for possible elimination on three separate scalings: importance, load, and power. Items highly correlated on all three scalings were eliminated reducing the scale from 211 items to 94. All subsequent psychometric testing has been conducted on the 94 items in Form 3.

The construct validity of the scale was tested through factor analysis using the Statistical Package for the Social Sciences (SPSS) program factor with alpha factoring and orthogonal rotation. Satisfactory results were obtained with seven, six, or five factors with six factors accounting for the major increments in explained variance.

Factor Analysis-Six Factor Variance Summary

Factor	Percent Variance	Cum. Percent
1 Health/Body	46.8	46.8
2 Religiosity/Spirituality	14.6	61.3
3 Work	11.6	72.9
4 Family	9.4	82.3
5 Self	9.1	91.4
6 Other Relationships	8.6	100.0

(Stevenson, 1982, p. 2)

However, the six factor analysis is not entirely congruent with the original six subscales (Stevenson, 1981). Items in factor 6 were either biopolar, appearing in one of the first factors with equal weight, or represented such a mixture of items so that no coherent theme was produced.

A test for internal reliability of the original six subscales produced Cronbach alpha reliability coefficients that were satisfactory for the first four subscales but non-acceptable for the latter two.

Cronbach Alpha Reliability Coefficients - Six Original Subscales

body	= .87
self	= .84
family	= .69
religiosity/spirituality	= .67
other human relationships	= .37
environment	= -.16

(Stevenson, 1981, pp. 224-225)

The five factor analysis showed encouraging compatibility with the dimensions of life from which the original six subscales were developed.

Comparison of Subscale Themes and Factor Analysis Results

ORIGINAL SUBSCALE THEMES	FACTOR LABELS	CONGRUENCE/DISSONANCE OF SUBSCALE ITEMS TO PARALLEL FACTOR
1. Body	1. Health	High degree congruence
2. Self	2. Self	High degree congruence
3. Family	3. Family	High degree congruence
4. Religiosity/ Spirituality	4. Religiosity/ Spirituality	High degree congruence
5. Extra Familial Relationships	5. Community	Mixed Results: (Community factor contained mixture of items from subscales 5 and 6 related to non-familial relationships, community issues, and environment.)
6. Environment		

(Stevenson, 1981, p. 224)

A test for internal reliability of the five factor analysis showed improvement over the original scale (Stevenson, 1982, p. 2).

Cronbach Alpha Reliability Coefficients - Five Factor Analysis

Health/Body	=	.87
Self	=	.84
Family	=	.80
Religiosity/Spirituality	=	.78
Community	=	.67

Stevenson (1982) states that additional data on the construct validity of the MIL scale is needed before any revisions can be made.

MARGIN OF POWER: ITS RELATIONSHIP TO ADULT STUDENTS

A recent literature search identified few empirical studies on the PLM concept. Although McClusky proposed the theory for use in adult education, of the few studies that exist, the majority have been conducted in the field of health care; all used the MIL scale (Andreas, 1974; Murphy, 1981; Stevenson, 1979, 1981, 1982). Two doctoral dissertations on nursing professional continuing education were based on the PLM concept (Gleit, 1976; Gessner, 1979). Gleit did not develop an instrument to measure load, power, and margin; Gessner did, but the instrument has not undergone as vigorous validity and reliability testing as that conducted on the MIL scale (Weiman, 1982).

A current study using an adult student population is under investigation to test McClusky's hypothesis that margin is a prerequisite for learning and to further test the validity of the Stevenson MIL scale (Weiman, 1982). Another hypothesis was made that female students in this program will have higher subscale scores in family and lower subscale score in self than those of the male students. The rationale for this hypothesis is based on empirical studies that indicate that female identity formation and development is defined more in terms of relationships to other people than the male personality (Bardwick, 1982; Gilligan, 1982).

The student population in this study consists of 22 men and six women who teach in colleges and universities throughout the nation and two foreign

countries. They are enrolled in a Master of Science in Computing Science Education at the University of Evansville, Indiana, that began in June of 1984. The goal of the program is to retrain college faculty to teach undergraduate computing science classes where the focus is on preparing programmers and systems analysts. The curriculum is neither mathematical or theoretical nor overly business-oriented but focuses on applications of the computer, programming languages, and the process of softwear development.

Six subjects hold a bachelor's degree in the fields of education, general studies, mathematics, and mechanical engineering. Twelve students hold a master's degree in the fields of business, business data processing, mathematics, statistics and commerce, and teaching and education. Ten students hold a doctoral degree in the fields of chemistry, English, foundations and philosophy of education, and mathematics. Eight students hold the rank of instructor, four assistant professors, seven associate professors, and five full professors, one of whom is also a department head. Three students are unemployed.

Their years of college teaching range from one to 29 years. The number of courses they have taken in computing science up to their entrance in this program ranges from zero to ten courses. The computing science languages they have mastered range from one to five languages, and all but five have taught computing science classes during the last two to four years.

This particular student population was chosen for the study because of the demanding and stressful nature of the program. The curriculum is highly technological, and the entire program is taught during the course of two consecutive summers with each summer session consisting of a ten week period. The work load is very heavy and consists of major projects which are very time consuming as well as regular testing periods. While students in this

program ultimately express their satisfaction with the educational content of the program and their own academic accomplishments, they experience high stress as can be evidenced from the following excerpts taken from essays written by former students.

> It took somewhat less than one day to realize that this program was going to be a MASTER'S program. The program director made it very clear that he wanted us to be doing as much as we could with the time we had available. He assigned enough material for study in his class alone to insure that his pronouncement would be realized.
>
> There is no way I can describe all the experiences of the summer of '82. We had eight programs to write in the data structures course in a language none of us knew.
>
> We thought that four homework problems each week was a nice gesture until we discovered that to do a quality job one needed to spend fifteen to thirty hours in completing them.
>
> The program director never relented in his goal of having us do as much as we were able with the time available...available meant as nearly as possible 168 hours a week.
>
> Such programs are clearly not for the faint-hearted. It took every ounce of energy and stamina. Time has never before seemed so precious.

The majority of students who enroll in this program are married, do not reside in Evansville, and are separated from their families for the entire ten week period. Former students who have brought their families with them did not find this arrangement satisfactory as they had little spare time to spend with them. One female student who had left two very young children at home with her husband in Mississippi managed to go home several times but felt that this was time she could ill afford to spend away from her studies.

Students are housed in the dorms and share dormitory space with undergraduate students. This too was difficult for many of the students in the program, and one student stated that

> ...students of this program cannot be housed with undergraduate students...there must be a quiet environment. I cannot express strongly enough my feelings on having quiet.

It is quite evident that this program requires students who can be characterized as possessing high self-esteem and self-confidence, high motivation, good physical and mental health, the ability to work independently or with others, and good support systems both personal and financial, all components of margin as identified by both McClusky and Stevenson. Assuming that the PLM theory has validity, we can readily make the prediction that there will be a positive correlation between the margin scores of the students in the program and their academic performance. Preliminary findings indicate that this is indeed the case. A complete analysis of the data will be available within the next two months.

The MIL scale affords a relatively simple and easy way to collect and evaluate data related to adult life sequences. The scale can also be used as an assessment tool to identify areas of strengths and weaknesses as well as potential power in adult students helping them modify their life space to more effectively meet their educational goals.

While positive results have been produced using the MIL scale, additional construct validity testing and refinement of the scale are needed. This tool warrants serious consideration for further research and implementation in the field of adult education.

Footnotes

1. The empty nest syndrome is probably not as traumatic an event today as it was at the time Dr. Peck wrote this article.

2. Copyrights are pending for the Margin in Life Scale and Demographic Questionnaire Form 1 and Form 2. Permission to use these materials was granted to the investigator by Dr. Stevenson.

Reference List

Bardwick, J. M. The seasons of a woman's life. In D. G. McGuigan (Ed.), Women's lives: new theory, research and policy. Ann Arbor: The University of Michigan, 1980.

Buhler, C. The curve of life as studied in biographies. Journal of Applied Psychology, 1935, 19, 406-409.

Cornell Medical Index-Health Questionnaire. Ithaca, N.Y.: Cornell Medical College, 1956, 1965 (revised)

Erikson, E. H. Childhood and society. New York: W. W. Norton & Co., Inc., 1950.

Fitts, W. H. Tennessee self-concept scale. Nashville: Counselor Recordings and Tests, 1974.

Gessner, B. A. Margin and its relationship to nurses' participation in continuing professional education (Doctoral dissertation, University of Wisconsin-Madison, 1979). Dissertation Abstract International, 1980, 40, 4846-A. (University Microfilms No. 47-18,800)

Gilligan, C. Restoring the missing text of women's development to life cycle theories. In D. G. McGuigan (Ed.), Women Lives: new theory, research and policy. Ann Arbor: The University of Michigan, 1980.

_____ In a different voice. Cambridge: Harvard University Press, 1982.

Gleit, C. J. Effects of family composition on the North Carolina nursing force and their participation in continuing education programs. (Doctoral dissertation, North Carolina State University at Raleigh, 1976). Dissertation Abstract International, 1977, 37, 4063-A. (University Microfilms No. 76-28,480)

Henry, W. E. Affective complexity and role perceptions, In J. E. Anderson (Ed.), Psychological aspects of aging. Washington, D. C.: American Psychological Association, 1956.

McClusky, H. Y. The course of the adult life span. In W. C. Hallenbeck (Ed.), Psychology of adults. Chicago: Adult Education Association of the USA, 1963.

_____ An approach to a differential psychology of the adult potential. In S. M. Grabowski (Ed.), Adult learning and instruction. Syracuse: ERIC Clearinghouse on Adult Education, 1970.

Neugarten, B. L., Havighurst R. J., & Tobin, S. S. Measurement of life satisfaction. Journal of Gerontology, 1961, 16, 134-143.

Peck, R. C. Psychological developments in the second half of life. In J. E. Anderson (Ed.), Psychological aspects of aging. Washington, D. C. American Psychological Association, 1956.

Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 1966, 80, 1-28

Stevenson, J. S. Construction of a scale to measure load, power and margin in life, Nursing Research, 1982, 31 222-225.

_____. Guidebook for use of the margin in life scale and demographic questionnaire form 1 and form 2. Columbus: The Ohio State University, 1982.

Swenson, W. C. Study of death attitudes in the gerontic population and their relationship to certain measurable physical and social characteristics.
Unpublished doctoral dissertation, University of Minnesota, 1958.

Reference Notes

Andreas, L. C. Use of the load-power and margin scale with chronic psychiatric clients and their spouses. Unpublished paper, The Ohio State University, 1974.

Murphy, B. F. Margin of life of diabetics in the early post-diagnosis stage. Unpublished masters thesis, The Ohio State University, 1981.